

Jonathan Morse

Baton Rouge, Louisiana

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Education

Bachelor of Science, Computer Science

Concentration in Software Engineering

Minors: Digital Media Arts and Engineering, Robotics

Louisiana State University, Baton Rouge Louisiana, August 2021 - May 2024

GPA: 3.46

Experience

Research Assistant

National Science Foundation, LSU Computer Science, LSU Construction Management

Baton Rouge, Louisiana

August 2023 - Present

- Pioneering research using Unreal Engine 5, Houdini, and Meta Quest for cutting-edge simulations.
- Collaborating with LSU Construction Management to identify essential skills for future space construction workers.
- Developing immersive VR environments that replicate extraterrestrial construction scenarios.
- Designing training modules that simulate realistic space environments and materials.

Research Assistant

University of Cambridge Dept. of Civil Engineering, LSU Civil and Environmental Engineering

Baton Rouge, Louisiana

May 2023 - Present

- Investigating self-sensing cementitious materials such as geopolymers and ordinary cement with conductive fillers like carbon fiber and graphene.
- Analyzing ionic and electronic conduction in cementitious materials to understand their sensing capabilities.
- Calculating gauge factors and stress responses to understand the material's behavior under different loads.
- Employing a data-driven approach to develop predictive models for property prediction and design optimization.
- Collaborating on data collection, cleaning, feature engineering, and using machine learning algorithms like Decision Trees, SVM, and Neural Networks for analysis.
- Collaborating on experiments, numerical computations, and utilizing techniques like t-SNE for feature dimension reduction.

Project Intern

National Aeronautics and Space Administration, LSU Center for Computational Technology

Baton Rouge, Louisiana

May 2023 - August 2023

- Developed a control flow utilizing the HoloLens to control the uFactory xArm within the digital twin project.
- Established web socket connections to bridge the xArm SDK and an Unreal Engine program.
- Integrate the robotic arm control into the digital twin environment of the Michoud Facility.
- Contributed to the documentation and reporting of the project, highlighting the integration of HoloLens control with the digital twin.

Research Assistant

LSU Center for Computational Technology

Baton Rouge, Louisiana

March 2023 - May 2023

- Developed a web application that allows students to experience sound visualization through an augmented reality experience.

References

Dr. Andrew Webb

Supervisor, LSU Department of Computer Science and Engineering

Louisiana State University

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Marc Aubanel

Supervisor, LSU Director of Digital Media Arts and Engineering

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Dr. Hye Yeon Nam

Supervisor, LSU College of Art and Design

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Dr. Yen-Fang Su

Supervisor, LSU Department of Civil and Environmental Engineering

Louisiana State University

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Skills

Frontend: HTML, CSS, JavaScript, P5.js, Three.js, React.js

Backend: Java, Python, C, C++, SpringBoot, Node, Ruby, OCaml

DataBases: MySQL, SQL, MariaDB, MongoDB

Game Engines: Unreal Engine

Machine Learning / Data Science: Google Colab, TensorFlow, scikit-learn, Pandas, MatLab

Cloud: AWS, Google Cloud Platform

Robotics: ROS, ROS2, Ubuntu Linux

Modeling and Animation: Blender, Houdini

Development and Management: Git, GitHub, Perforce, Jira
